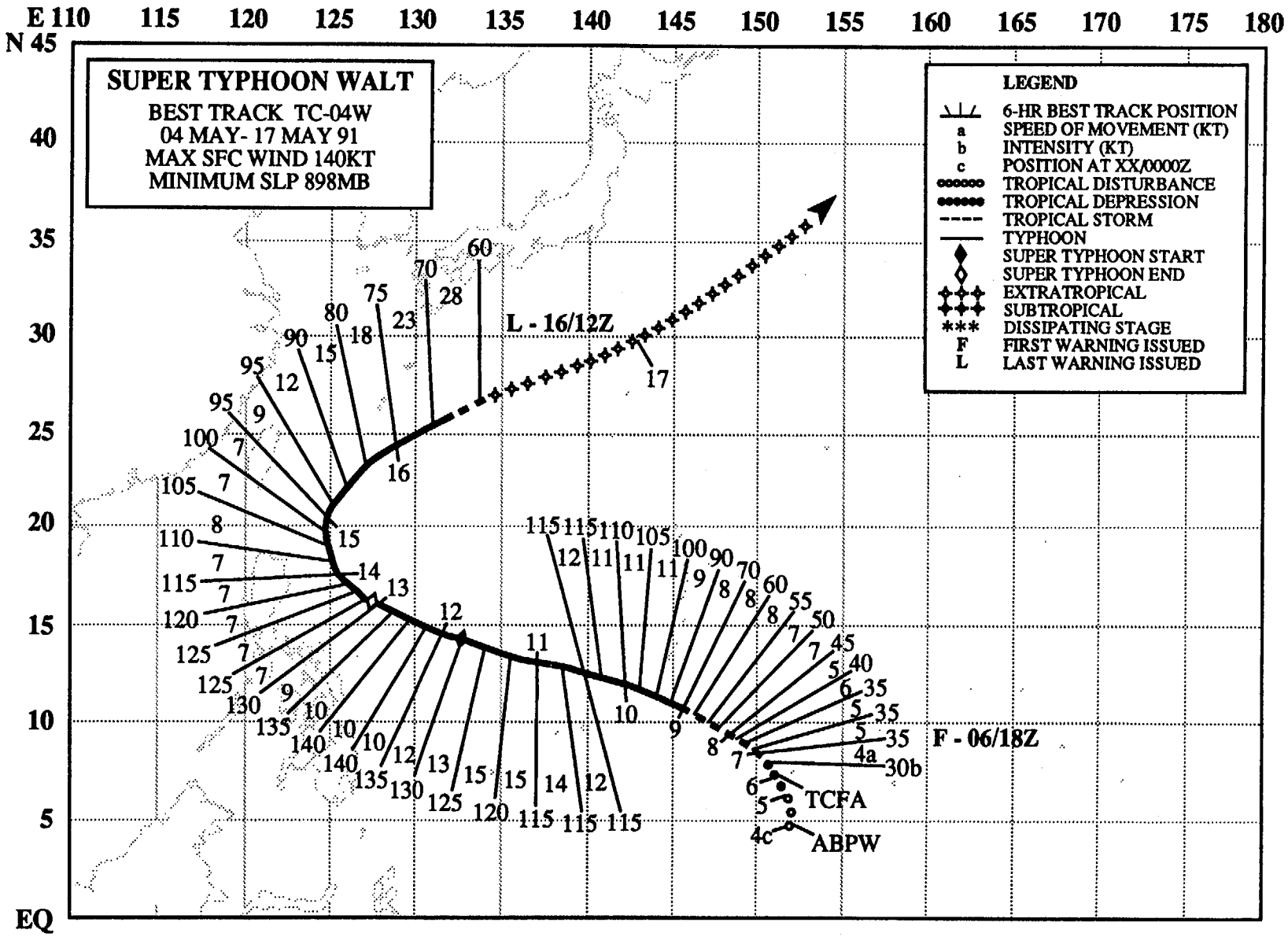
SUPER TYPHOON WALT
BEST TRACK TC-04W
04 MAY- 17 MAY 91
MAX SFC WIND 140KT
MINIMUM SLP 898MB
LEGEND
6-HR BEST TRACK POSITION
a SPEED OF MOVEMENT (KT)
b INTENSITY (KT)
c POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED
L - 16/12Z
F - 06/18Z
TCFA
ABPW
E 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180
N 45 40 35 30 25 20 15 10 5 EQ

SUPER TYPHOON WALT (04W)

I. HIGHLIGHTS

Walt was the first super typhoon in the western North Pacific this year and the only significant tropical cyclone to form in May. It developed as part of an equatorial convective process known as a "westerly burst" (Lander, 1990) at the same time a twin, Tropical Cyclone 21P (Lisa), developed in the Southern Hemisphere.

II. TRACK AND INTENSITY

The cloud system that was to become Walt developed in low latitudes in the eastern Caroline Islands in tandem with Tropical Cyclone 21P (Lisa) in the Southern Hemisphere in the Coral Sea. The evolution of these twins is graphically portrayed as cloud silhouettes in Figure 3-04-1. The tropical disturbance initially tracked northwestward towards a weakness in the subtropical ridge north of Guam. However, the subtropical ridge strengthened, built westward, and forced Walt to take a more west-northwesterly track. The tropical cyclone kept on this course for ten days until recurvature occurred early on 15 May. Then, Walt interacted with the polar westerlies aloft and accelerated east-northeastward. Extratropical transition occurred on 16 May as Walt merged with a passing frontal system.

In review, the persistence of Walt's convection prompted first mention on the Significant Tropical Weather Advisory at 040600Z. At 060200Z, a Tropical Cyclone Formation Alert followed the report of a 23 kt (12 m/sec) gradient-level wind at Chuuk (WMO 91334) and a 30 kt (15 m/sec) ship report. Cyclonic rotation of the convective cloud elements on the animated satellite imagery and 20-30 kt (10-15 m/sec) synoptic reports resulted in the issuance of the first warning at 061800Z. The upgrade to tropical storm intensity at 070000Z resulted from a Dvorak intensity estimate increase and another 30 kt (15 m/sec) ship report. A typhoon intensity estimate resulting from the appearance of a ragged eye prompted a warning upgrade to typhoon at 090000Z. Intensification continued, reaching a peak of 140 kt (70 m/sec) at 120600Z. As Walt approached the axis of the subtropical ridge, the vertical shear increased and the typhoon's cloud shield elongated southwest to northeast (Figure 3-04-2). Slow weakening set in and continued through extratropical transition which occurred at 161800Z.

III. FORECAST PERFORMANCE

The overall track errors were 70 nm (130 km), 150 nm (275 km) and 225 nm (420 km) for the 24-, 48-, and 72-hour forecast, respectively. OTCM, CSUM and NOGAPS also did well and demonstrated skill in comparison with CLIPER.

The intensity forecasts were not as skillful. Although rapid intensification and peaking at super typhoon intensity were discussed early in the prognostic reasoning messages, it remained an alternate scenario. However, once rapid intensification began, JTWC did do a much better job of forecasting peak intensity and the weakening trend. Accurate forecasts near Guam prevented DOD and the Government of Guam from taking expensive unnecessary precautions saving upwards of US$3 million.

IV. IMPACT

Even though Walt passed near Guam, northern Luzon and Okinawa, no reports of significant damage were received.

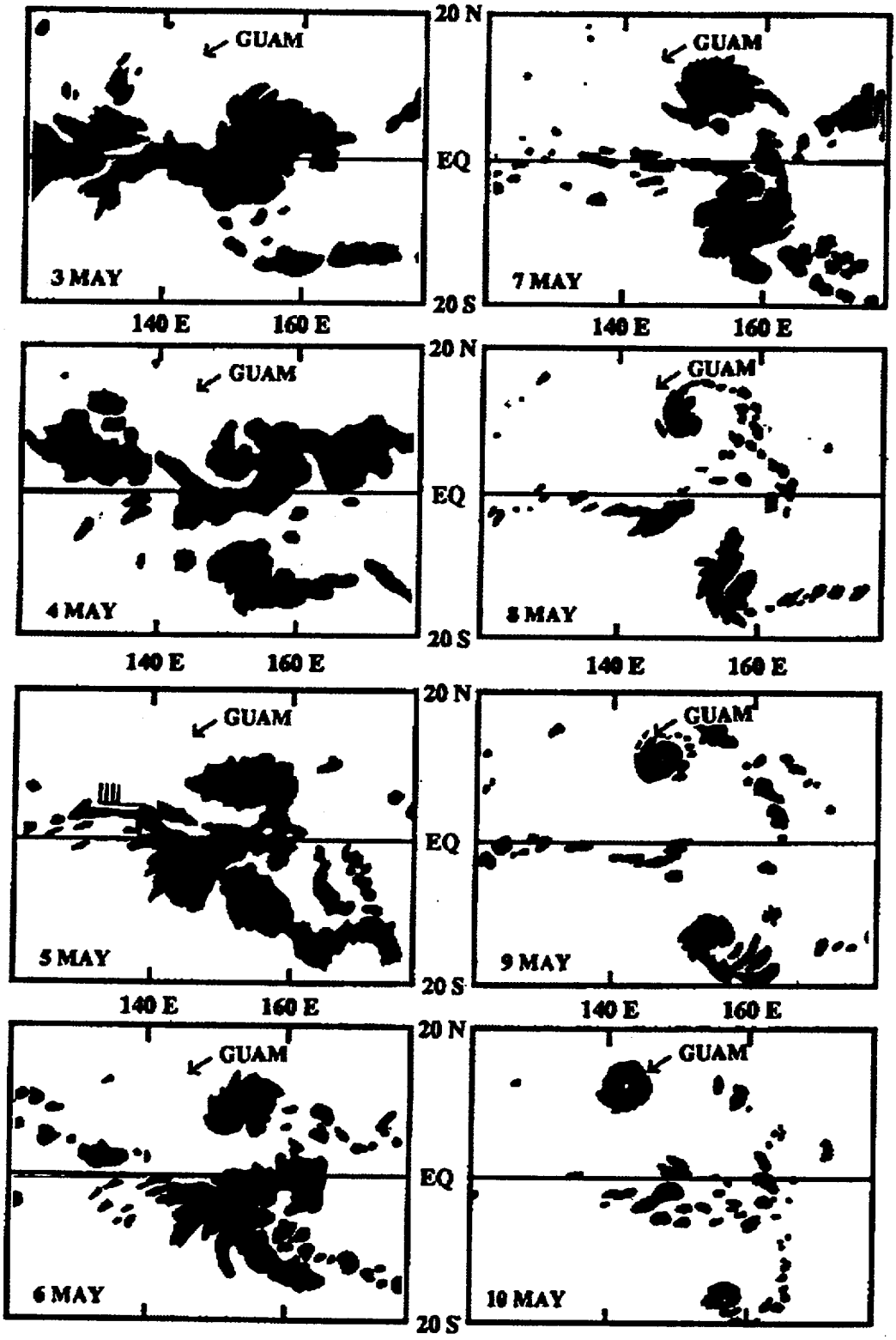

Figure 3-04-1. Silhouettes of deep cloudiness are associated with the "westerly burst" for the period 03 to 10 May. A 40 kt (20 m/sec) ship report, which also cited blowing spray, near the equator on 05 May is unusually strong. As the equatorial convection and westerlies decrease on 7 May, the cloudiness consolidates in the twin cyclones in opposite hemispheres.

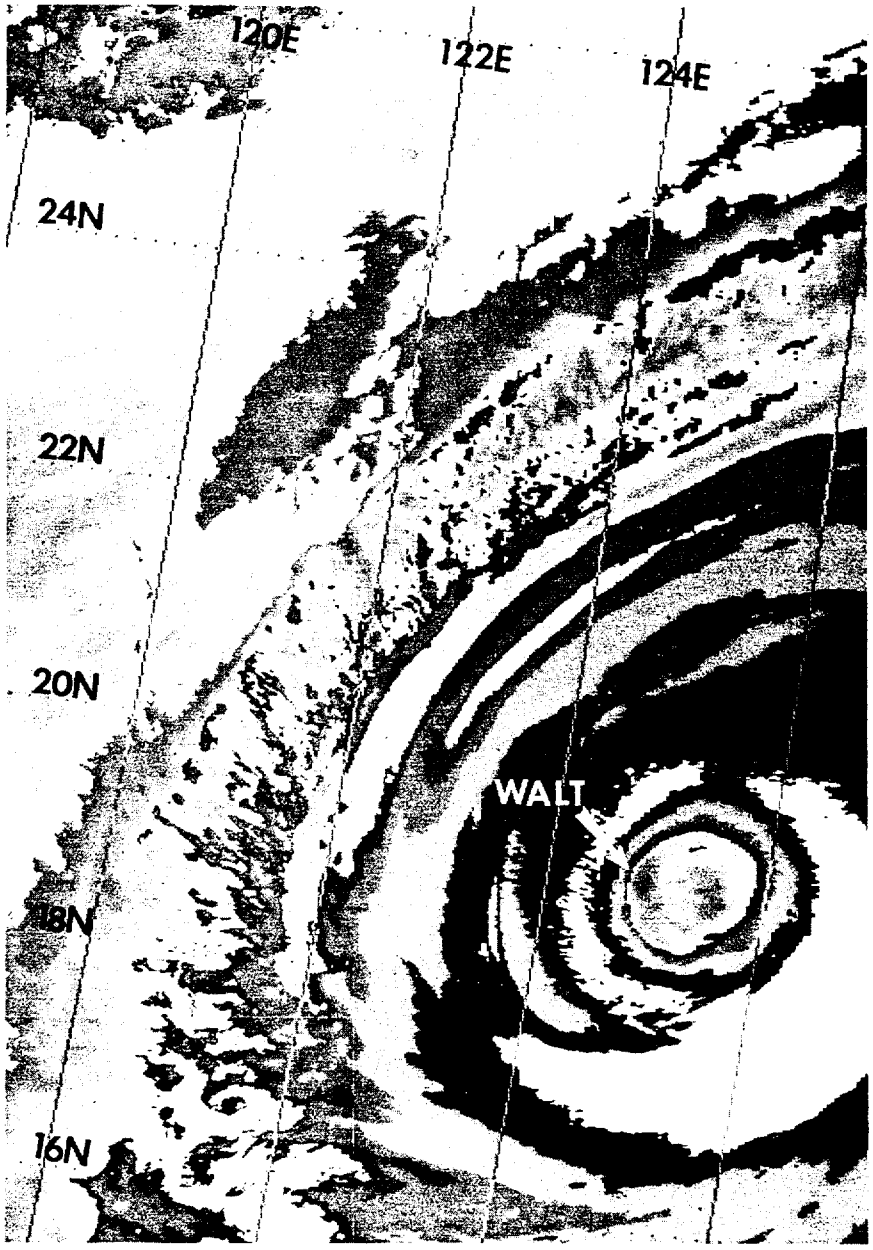

Figure 3-04-2. Walt shows first indications of vertical shear on system forcing the overall elongation of the cloud shield along an axis from southwest to northeast (141120Z May NOAA enhanced infrared imagery).